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DETAILED DESCRIPTION

[Detailed description]

[0001]

[The technical field to which invention belongs] Especially this invention relates to PDP which prevented the incorrect LGT between the electric discharge cells of the masses by which field arrangement was carried out about a plasma display panel (PDP).

[0002]

[Prior art] PDP in which thin-shape-izing of equipment is possible is proposed as the monitor of the personal computer in recent years, or a monitor for TV. Drawing 6 is the fracture perspective diagram of a part of conventional AC side electric discharge type color PDP. Much electric discharge space where this AC side electric discharge type color PDP is divided by the stripe septum 16 between the front substrate 10 and the tooth-back substrate 11 is ****ed. The field discharge-electrode group in which the scanning electrode 12 and the common electrode 13 were formed in parallel, and the transparent dielectric layer (insulating-layer 15a) which covers this field discharge-electrode group are prepared in the aforementioned front substrate. Moreover, the data electrode 14 which intersects perpendicularly with the aforementioned scanning electrode 12 and the common electrode 13, and the dielectric layer (insulating-layer 15b) which covers this data electrode 14 are prepared in the aforementioned tooth-back substrate 11. And among the aforementioned insulating layers 15a and 15b, in order to obtain the above mentioned electric discharge space, the stripe septum 16 formed in parallel with the data electrode 14 is formed. And although the pixel for displaying on the field to which the aforementioned scanning electrode 12 and the common electrode 13, and the data electrode 14 cross in the state of opposite by electric discharge, respectively is constituted along with the aforementioned stripe septum 17 and shown in drawing, the fluorescent substance of R, G, and B is applied to the front face of the aforementioned insulating-layer 15b, and the side face of the stripe septum 16, and mixed gas, such as helium, Ne, and Xe, is enclosed.

[0003] In this conventional AC side electric discharge type color PDP, the electroluminescence of between the scanning electrode 12 of all pixels and the common electrode 13 is compulsorily carried out by the pre-discharge pulse, and the pre-discharge of all pixels is further eliminated by the pre-discharge deletion pulse. By the pre-discharge, the charge according to the electrification nature of a fluorescent substance material and the electrostatic capacity between data electrode-side discharge electrodes is accumulated in a fluorescent substance front face. A scanning pulse is impressed to the scanning electrode 12 after a pre-discharge deletion at time sharing, it doubles with it and the data pulse corresponding to the display pattern is impressed to a data electrode. By the pixel to which the data pulse was impressed, it writes in at the time of impression of a scanning pulse, and electric discharge occurs at it. In the pixel which write-in electric discharge produced, the positive charge called wall charge to insulating-layer 15a on a scanning electrode is accumulated. Maintenance electric discharge occurs by superposition of the maintenance pulse impressed to the right potential and the common electrode 13 by this wall charge, and a display of a desired display pattern is realized by photogenesis with a fluorescent substance.

[0004]

[Object of the Invention] Two or more electric discharge cells located in a line in the orientation of a stripe septum were continuing, and this conventional AC side electric discharge type color PDP ***** spray panel did not have what divides a boundary clearly between an electric discharge cell and an electric discharge cell. For this reason, the electroluminescence produced in one cell affected the electric discharge cell which adjoins in the orientation of a stripe septum, and when a charge moved along with a data electrode, it had become the cause which an incorrect LGT generates. Although the technique which installed the block septum in the electrode unit which collects two or more pixels into a publication-number 028926 [five to] official report or a publication-number 013006 [five to] official report along the length orientation of a stripe septum, and was group-ized as 1 block is indicated to such a problem Since two or more electric discharge cells still exist in the block in the same block septum with this technique, it is difficult to prevent certainly the incorrect LGT between these electric discharge cells.

[0005] On the other hand, as conventional technique in each aforementioned official report, the aforementioned stripe septum and a block septum are formed a measure **, and the technique of dividing each electric discharge cell completely per 1 pixel is indicated. With this technique, since each electric discharge cell is separated completely, when preventing an incorrect LGT, it will become effective. however, when it applies to AC side electric discharge type color PDP which described this technique above Although the priming pass for supplying the charged particle between the adjoining electric discharge cells is formed as indicated by this official report The conduction nature of the filler gas between each electric discharge cell will be

bad, a distribution of the filler gas between all electric discharge cells will become uneven, and the problem that display qualities, such as a fall of partial brightness and stain, deteriorate will arise.

[0006] The purpose of this invention is to offer PDP which improved the display quality while it aims at prevention of an incorrect LGT.

[0007]

[The means for solving a technical problem] The front substrate which PDP of this invention equips with the field discharge-electrode group in which the scanning electrode and the common electrode were formed in parallel, A tooth-back substrate equipped with the data electrode ****ed in the orientation which intersects perpendicularly with the aforementioned scanning electrode and a common electrode, The stripe septum in which the aforementioned front substrate and the tooth-back substrate were formed in parallel with the aforementioned data electrode which divides the clearance by which opposite arrangement was carried out to two or more electric discharge space along the extended orientation of the aforementioned scanning electrode and a common electrode, It has the cell septum which divides the electric discharge space divided by the aforementioned stripe septum to two or more electric discharge cell spaces along the extended orientation of the aforementioned data electrode. It is characterized by preparing opening for becoming the passage of the discharge gas which the aforementioned cell septum is ****ed in the status cross the aforementioned data electrode, and is enclosed with the aforementioned electric discharge space between the aforementioned stripe septa.

[0008] Here, in the both ends, as for the aforementioned cell septum, opening is prepared between the aforementioned stripe septa. Or in the end section, as for the aforementioned cell septum, opening is prepared between the aforementioned stripe septa. Moreover, the aforementioned scanning electrode and a common electrode are prepared in a wrap transparent dielectric layer by the aforementioned front substrate, the aforementioned data electrode is prepared in a wrap white join dielectric layer by the aforementioned tooth-back substrate, and the aforementioned stripe septum and a cell septum are formed in one on the aforementioned white dielectric layer. furthermore, the field which faces this invention each front face of the aforementioned stripe septum, a cell septum, and a white dielectric layer at the electric discharge cell space of each above -- respectively -- R, G, or B -- it is constituted as an AC side electric discharge type color-display panel by which the fluorescent substance is applied

[0009] According to this invention, a cell septum is prepared in the status cross a data electrode, suppresses the influence of the electric discharge between the electric discharge cell spaces which **** the electric discharge cell space as a pixel, and adjoin by the stripe septum, and prevents occurrence of an incorrect LGT. On the other hand, conduction of the discharge gas can be carried out between each electric discharge cell space through opening prepared in the cell septum, a discharge gas is equalized, a display by uniform brightness is enabled, and a display quality is improved.

[0010]

[Gestalt of implementation of invention] Next, the enforcement gestalt of this invention is explained with reference to a drawing. Drawing 1 is the fracture perspective diagram of a part of AC side electric discharge type color PDP of this invention. In this drawing, the front substrate 10 and the tooth-back substrate 11 confront each other in parallel at the minute spacing, and many electric discharge cells are constituted between these front substrate 10 and the tooth-back substrate 11. two or more band-like scanning electrodes 12 and the band-like common electrode 13 make and form a pair in the aforementioned front substrate 10, respectively -- having -- **** -- a spacing necessary in these scanning electrodes 12 and common electrodes 13 -- alternation -- and it is prepared in parallel mutually and constituted as a field discharge-electrode group Moreover, the aforementioned scanning electrode 12 and the common electrode 13 are covered with the transparent dielectric layer (insulating-layer 15a) formed of a thick-film-screen-printing process. The dielectric layer (insulating-layer 15b) which mixed the white inorganic pigment by the thick-film-screen-printing process which the data electrode 14 which becomes the aforementioned tooth-back substrate 11 from two or more band-like metal electrodes which intersect perpendicularly with the aforementioned scanning electrode 12 and the common electrode 13 on the other hand is formed in parallel at the necessary spacing, and covers the aforementioned data electrode 14 is formed.

[0011] And the stripe septum 16 for securing electric discharge space is formed along the length orientation of the data electrode 14 in the mid-position of the parallel orientation of the aforementioned data electrode 14 between insulating-layer 15a of the front substrate 10, and insulating-layer 15b on the aforementioned tooth-back substrate 11. Moreover, between the aforementioned scanning electrode 12 and the common electrode 13, the cell septum 17 is formed in the orientation which intersects perpendicularly with ***** of the aforementioned stripe septum 16 between each aforementioned stripe septum 16. By this, space divided by the aforementioned stripe septum 16 and the cell septum 17 will be ****ed as an electric discharge cell space as a pixel. Here, the aforementioned cell septum 17 is the right above position of the aforementioned data electrode 14, and between the aforementioned stripe septa 16, it is formed so that the data electrode 14 may be crossed, and the opening 19 used as the passage of a discharge gas later mentioned between the aforementioned stripe septa 16 is formed in the both ends of the length orientation of the cell septum 17. In addition, with this enforcement gestalt, the aforementioned cell septum 17 is formed in the length by which the both ends are not contacted by the aforementioned stripe septum 16, respectively, and the aforementioned opening 19 is formed of the clearance of the ends side of the cell septum 17, and the stripe septum 16. The dimension of this opening 19 is designed in a parvus dimension as much as possible in the domain which does not bar the conduction of a discharge gas. Moreover, the periphery of the aforementioned front substrate 10 and the tooth-back substrate 11 is airtightly ****ed by the peripheral wall which omits illustration. And the fluorescent substance of R, G, and B is applied to the front face of the aforementioned insulating-layer 15b, and the side face of the stripe septum 16 and the cell septum 17, and mixed gas, such as helium, Ne, and Xe, is enclosed as a discharge gas in the aforementioned

electric discharge space.

[0012] It explains with reference to drawing 2 which shows an example of a driver-voltage wave which impresses the drive technique of AC side electric discharge type color PDP of the above configuration to each electrode. First, deletion electric discharge is produced by the deletion pulse P1, it cheats, the pixel which was emitting light before time to be shown in drawing 2 is eliminated, and all pixels are changed into the deletion status. Next, the electroluminescence of between scanning electrodes [of all pixels] 121-12m, common electrode 131, - 13m is compulsorily carried out by the pre-discharge pulse P2, and the pre-discharge of all pixels is further eliminated by the pre-discharge deletion pulse P3. By the pre-discharge, the charge according to the electrification nature of a fluorescent substance material and the electrostatic capacity between data electrode-side discharge electrodes is accumulated in a fluorescent substance front face. The scanning pulse P4 is impressed to the scanning electrodes 121-12m after a pre-discharge deletion at time sharing, it doubles with it and the data pulse P7 is impressed to the data electrodes 141-14n according to photogenesis data. The oblique line of the data pulse P7 shows that the existence of the data pulse P7 is determined according to the existence of photogenesis data. By the pixel to which the data pulse P7 was impressed, it writes in at the time of impression of the scanning pulse P4, and electric discharge occurs at it. Selection of photogenesis / not emitting light of RGB pixel which constitutes one pixel is performed by the existence of the aforementioned write-in electric discharge between one scanning pulse.

[0013] Moreover, the write-in electric discharge which determines photogenesis / un-emitting light for every pixel is the opposite electric discharge between the scanning electrodes 12 and the data electrodes 14 in electric discharge space which counter in the void of insulating-layer 15a on the front substrate 10, and insulating-layer 15b on the tooth-back substrate 11. In the pixel which write-in electric discharge produced, the positive charge called wall charge to insulating-layer 15a on the scanning electrode 12 is accumulated. The 1st maintenance electric discharge occurs by superposition of 1st maintenance pulse P5 impressed to the right potential and the common electrode 13 by this wall charge. the voltage of maintenance pulse P5 and the maintenance pulse P6 -- this pulse voltage -- if independent and it adjusts to the grade which electric discharge does not generate beforehand, since there is no potential according to a wall charge to 1st impression before of maintenance pulse P5 in the pixel which write-in electric discharge does not produce, the 1st maintenance electric discharge after it will not be generated A display is realized by writing in and maintaining a desired display pattern in the above operation.

[0014] In this AC side electric discharge type color PDP, the electric discharge space where the configuration for dividing an electric discharge cell space is located in a line in the extended orientation of not only the stripe septum 16 but the stripe septum 16 is divided, and it has the cell septum 17 formed so that the data electrode 14 top might be crossed so that expansion illustration of the part may be carried out at drawing 3 . Thereby, the electroluminescence produced by one electric discharge cell space can prevent the move of a charge which did not affect the electric discharge cell which adjoins in the extended orientation of the stripe septum 16, and met the data electrode 14, and becomes possible [preventing occurrence of an incorrect LGT]. On the other hand, since conduction of the discharge gas is carried out through each electric discharge cell space in the both ends and the opening 19 prepared in the position most distant from the data electrode 14 with little influence of the electric discharge generated by the data electrode 14 if it puts in another way, the cell septum 17 equalizes a distribution of the discharge gas in each electric discharge cell space, and equalizes the brightness in all electric discharge cell spaces, and it is enabled to raise a display quality.

[0015] the 2nd enforcement gestalt of this invention -- a part of drawing 4 -- it is shown in a fracture perspective diagram In addition, the same sign is attached about the part where the enforcement gestalt and configuration of the above 1st are the same. The field discharge-electrode group in which the scanning electrode 12 and the common electrode 13 were formed in parallel, and the transparent dielectric layer (insulating-layer 15a) which covers this field discharge-electrode group are prepared in the front substrate 10, and, as for AC side electric discharge type color PDP of this enforcement gestalt, the dielectric layer (insulating-layer 15b) which covers the data electrode 14 which intersects perpendicularly with the aforementioned scanning electrode 12 and the common electrode 13, and this data electrode 14 to the tooth-back substrate 11 is prepared in it Moreover, between the aforementioned front substrate 10 and the tooth-back substrate 11, in order to obtain the electric discharge space of an electric discharge cell, the stripe septum 16 formed in parallel with the aforementioned data electrode 14 is formed. The above configuration is the same as that of the enforcement gestalt of the above 1st. And between the aforementioned stripe septa 16, the cell septum 18 is formed so that between the electric discharge cells located in a line in the extended orientation of the stripe septum 16 may be divided, this cell septum 18 is right above [of the aforementioned data electrode 14], and it is formed so that the data electrode 14 may be crossed. However, this cell septum 18 has connected one edge with the aforementioned stripe septum 16 among the extended orientation both ends, and the opening 19 from which the other-end section serves as the passage of a discharge gas between the stripe septa 16 is formed.

[0016] Also in this enforcement gestalt, by the pulse supplied to each electrode, the point of performing a predetermined display is the same as that of the case of the 1st enforcement gestalt, and the explanation is omitted. Also in this enforcement gestalt, as the part is shown in drawing 5 , the configuration for dividing an electric discharge cell moreover, not only in the stripe septum 16 Since it has the cell septum 18 formed so that the electric discharge space located in a line in the extended orientation of the stripe septum 16 might be divided and the data electrode 14 top might be crossed, A move of the charge to which the electroluminescence produced by one electric discharge cell space did not affect the electric discharge cell space which adjoins in the extended orientation of the stripe septum 16, and met the data electrode 14 can be prevented, and it is enabled to prevent occurrence of an incorrect LGT. since [moreover,] conduction of the discharge gas is carried out over each electric discharge cell space in the opening 19 by which the cell septum 18 was formed in the position most distant from the data electrode 14 of the end section -- each electric discharge cell -- space -- a distribution of the discharge gas to kick is

equalized, the brightness in all electric discharge cell spaces is equalized, and it also becomes possible to raise a display quality

[0017] Here, if opening which is ****ed so that such a cell septum may cross a data electrode, and becomes with the passage of a discharge gas between stripe septa is prepared in this invention, it will not be restricted to the configuration of each above mentioned enforcement gestalt. For example, opening may be made to be arranged in the position of right-and-left alternation between the cell septa which adjoin in the length orientation of a stripe septum, and a diffusion is promoted by the conduction of the discharge gas in the orientation of a vertical angle in each electric discharge cell space, and it becomes possible [also raising equalization of the discharge gas in each electric discharge cell space] from this.

[0018]

[Effect of the invention]-The stripe septum to which this invention divides the clearance where opposite arrangement of a front substrate and the tooth-back substrate was carried out to two or more electric discharge space along the extended orientation of a scanning electrode and a common electrode as explained above, It has the cell septum which divides the electric discharge space divided by this stripe septum to two or more electric discharge cell spaces along the extended orientation of a data electrode. And since opening for becoming the passage of the discharge gas which a cell septum is ****ed in the status cross a data electrode, and is enclosed with electric discharge space between stripe septa is prepared While the electroluminescence produced in one cell by the cell septum can prevent the move of a charge which did not affect the electric discharge cell which adjoins in the orientation of a stripe septum, and met the data electrode and can prevent occurrence of an incorrect LGT Conduction of the discharge gas can be carried out between each electric discharge cell by opening prepared in the cell septum, the brightness in each electric discharge cell is equalized, and it is effective in the ability to improve a display quality.

[Translation done.]

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CLAIMS

[Claim]

[Claim 1] A front substrate equipped with the field discharge-electrode group in which the scanning electrode and the common electrode were formed in parallel, A tooth-back substrate equipped with the data electrode ****ed in the orientation which intersects perpendicularly with the aforementioned scanning electrode and a common electrode, The stripe septum in which the aforementioned front substrate and the tooth-back substrate were formed in parallel with the aforementioned data electrode which divides the clearance by which opposite arrangement was carried out to two or more electric discharge space LAIMS □he extended orientation of the aforementioned scanning electrode and a common electrode, It has the cell septum which divides the electric discharge space divided by the aforementioned stripe septum to two or more electric discharge cell spaces along the extended orientation of the aforementioned data electrode. The aforementioned cell septum is a plasma display panel characterized by preparing opening for becoming the passage of the discharge gas which it ****s in the status cross the aforementioned data electrode, and is enclosed with the aforementioned electric discharge space between the aforementioned stripe septa.

[Claim 2] The aforementioned cell septum is a plasma display panel given in the claim 1 by which opening is prepared between the aforementioned stripe septa in the both ends.

[Claim 3] The aforementioned cell septum is a plasma display panel given in the claim 1 by which opening is prepared between the aforementioned stripe septa in the end section.

[Claim 4] The claim 1 by which the aforementioned scanning electrode and a common electrode are prepared in a wrap space of each above □c layer by the aforementioned front substrate, the aforementioned data electrode is prepared in a wrap white join dielectric layer by the aforementioned tooth-back substrate, and the aforementioned stripe septum and a cell septum are formed in one on the aforementioned white dielectric layer, or a plasma display panel given in either of 3.

[Claim 5] a plasma display panel given in the claim 4 R, G, and whose B are AC side electric discharge type color-display panels by which the fluorescent substance is applied either, respectively in the field facing each front face of the aforementioned stripe septum, a cell septum, and a white dielectric layer at the electric discharge cell space of each above

[Translation done.]

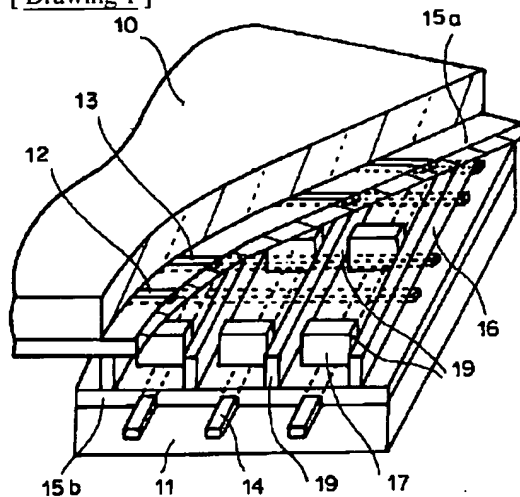
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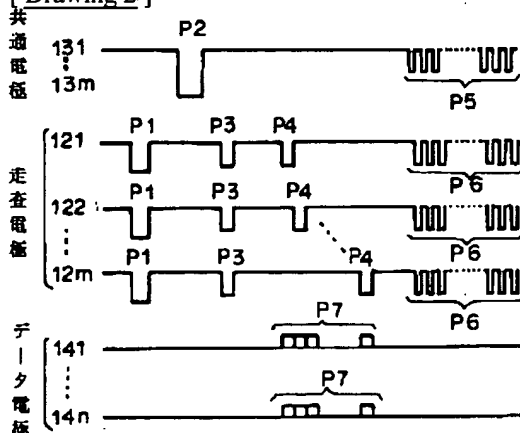
DRAWINGS

[Drawing 1]



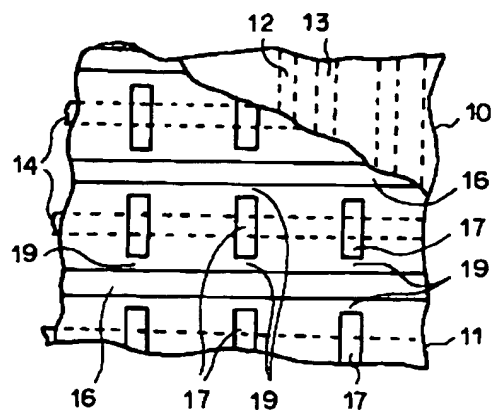
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- 11 : 背面基板
- 12 : 走査電極
- 13 : 共通電極
- 14 : データ電極
- 15 a, 15 b : 絶縁層
- 16 : ストライプ隔壁
- 17 : セル隔壁
- 19 : 開口部

[Drawing 2]



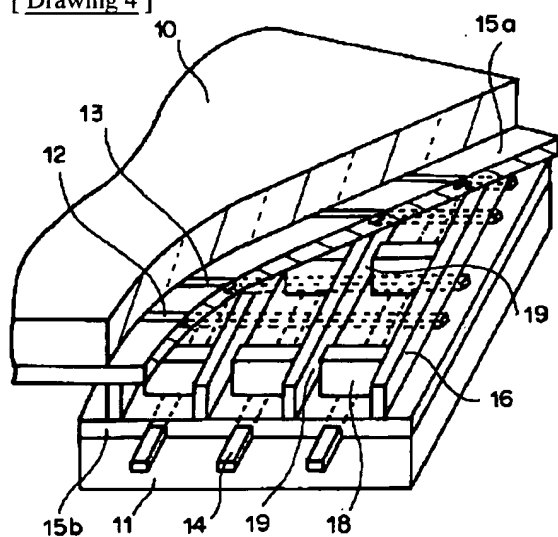
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- P2 : 予備放電パルス
- P3 : 予備放電消去パルス
- P4 : 走査パルス
- P5 : 維持パルス列
- P6 : 維持パルス列
- P7 : データパルス

[Drawing 3]



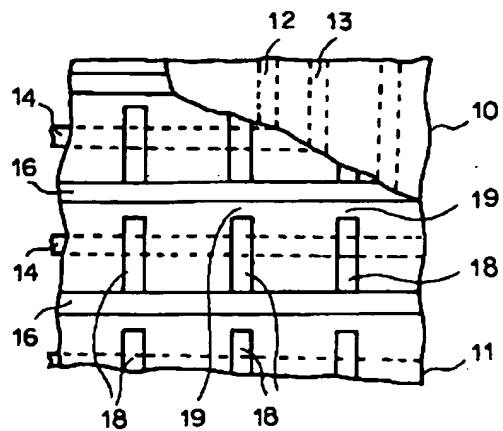
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- 17 : セル隔壁
- 19 : 開口部

[Drawing 4]



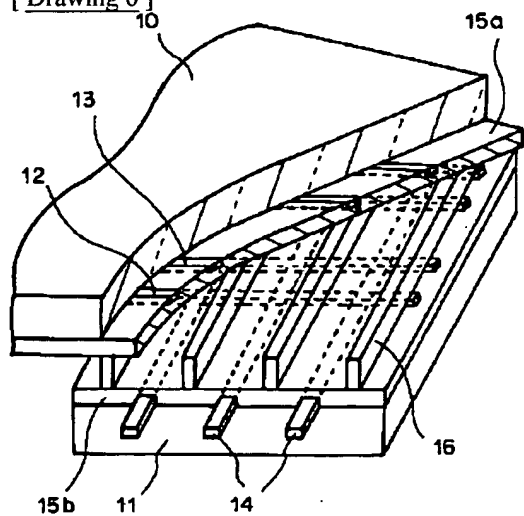
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- 15 a, 15 b : 絶縁層
- 16 : ストライプ隔壁
- 18 : セル隔壁
- 19 : 開口部

[Drawing 5]



- 10 : 前面基板
- 11 : 背面基板
- 12 : 走査電極
- 13 : 共通電極
- 14 : データ電極
- 18 : ストライプ隔壁
- 18 : セル隔壁
- 19 : 開口部

[Drawing 6]



- 10 : 前面基板
- 11 : 背面基板
- 12 : 走査電極
- 13 : 共通電極
- 14 : データ電極
- 15 a, 15 b : 絶縁層
- 18 : ストライプ隔壁

[Translation done.]